

AMENDMENTS TO THE SPECIFICATION

IN THE ABSTRACT

Please replace the present abstract with the abstract attached hereto.

--A fixing device for fixing an image formed on a sheet member is disposed on a transportation path for transporting the sheet member thereon. The fixing device can be attached to or detached from the main body of an image forming apparatus, and a guide member is provided in the image forming apparatus for guiding the fixing device when it is attached to or detached from the main body of the image forming apparatus. The guide member includes an inclined surface on which the fixing device is placed to be guided upward for attachment. If the fixing device is unlocked from the main body of the image forming apparatus at the time of maintenance or the like, the fixing device is moved outwardly along the inclined surface due to its own weight.

IN THE SPECIFICATION:

Page 1, please amend the second paragraph as follows:

The present invention relates to an image forming apparatus such as a printer, a facsimile ~~and~~ or a copying machine.

Page 1, the last paragraph bridging pages 1 and 2, please amend as follows:

After the image formation in the image forming unit, the sheet member is discharged outside of the image forming apparatus. In recent years, the complexity of the image forming apparatus has ~~been progressed,~~ increased and ~~therefore,~~ it is desirable that the image forming apparatus should have the functions of a copying machine, a printer, a facsimile and the like in combination, and that the sheet members to be discharged should be classified according to the image forming function, thereby obtaining an image forming system easy to be used. In order to achieve such an image forming system, for example, there has been proposed an image forming apparatus configured such that discharge ports, through which the sheet member in the image forming unit is discharged outside of the image forming apparatus via the transportation path, are disposed on both sides of the apparatus body, thereby facilitating the classification of the sheet members.

Page 7, first full paragraph, please amend as follows:

However, in the case where the serviceman or the like ~~waits the~~ awaits satisfactory heat ~~irradiation~~ dissipation from the fixing device while the fixing

device remains disposed in the apparatus body until the temperature at the fixing device is decreased down to such a level that it is stable even if the fixing device can be firmly grasped by a hand, a long period of time is required since the fixing device is disposed inside of the apparatus body. Furthermore, operating efficiency is reduced, thereby raising a problem that a service time becomes prolonged in total.

Page 7, last paragraph, please amend as follows:

In view of the above-described problems observed in the prior art, ~~an object~~ a desirable feature of the present invention is to provide an image forming apparatus, in which heat can be irradiated in a short time in a fixing device at the time of maintenance or the like.

Page 8, first paragraph, please amend as follows:

Furthermore, another ~~object~~ feature of the present invention ~~is to provide~~ may include providing an image forming apparatus, in which a fixing device is moved outside by its own weight by a simple operation, to thus irradiate heat in a short time owing to outside air at the time of the maintenance or the like.

Page 8, second paragraph, please amend as follows:

An image forming apparatus according to an embodiment of the present invention comprises: a fixing device having roller members for fixing an image

on a sheet member and being disposed on a transportation path, on which the sheet member is transported; an attaching/detaching device for freely attaching or detaching the fixing device to or from the main body of the image forming apparatus; and a guide member provided in the main body of the image forming apparatus, for guiding the fixing device in a slidable manner; wherein the guide member includes an inclined slope, on which the fixing device is placed to be guided slantwise upward, when the fixing device is attached to the image forming apparatus by the attaching/detaching device.

Page 9, last paragraph bridging pages 9 and 10, please amend as follows:

FIG. 2 is a ~~constitutional~~ partial view showing a state in which a fixing device for use in the image forming apparatus is installed in the main body of the image forming apparatus;

Page 10, first full paragraph, please amend as follows:

FIG. 3 is a ~~constitutional~~ partial view showing a state in which the fixing device is detached from the main body of the image forming apparatus;

Page 10, second full paragraph, please amend as follows:

FIG. 4 is a ~~constitutional~~ partial view showing a state in which the fixing device is held in a horizontal state;

Page 10, third full paragraph, please amend as follows:

FIG. 5 is a ~~constitutional~~ partial view showing essential parts of the fixing device;

Page 10, fourth full paragraph, please amend as follows:

FIG. 6 is a front view of the fixing device showing the fixing device, as viewed from the side of the installation;

Page 10, fifth full paragraph, please amend as follows:

FIG. 7 is another ~~constitutional~~ partial view showing a state in which the fixing device is installed in the main body of the image forming apparatus;

Page 14, the second full paragraph bridging pages 14 and 15, please amend as follows:

Moreover, the first transportation path 15 extends in a vertical direction perpendicular to a frame 17 in to the base of the sheet supplying unit 3. In contrast, the second transportation path 16 extends in a horizontal direction parallel to the base of the sheet supplying unit 3 ~~along the frame 17~~. Both of the paths 15 and 16 merge with each other into the vertical path P' in the printer unit 2. Consequently, the sheet supplying trays 11 to 14, the first transportation path 15 and the second transportation path 16 are efficiently arranged inside of the sheet supplying unit 3, thereby saving the space of the sheet supplying unit 3. In the case where the sheets are stacked in each of the sheet supplying trays 11 to

14, a target one of the sheet supplying trays 11 to 14 is withdrawn out forward in the main body of the image forming apparatus 1, and then, sheets are replenished.

Page 15, the first full paragraph, please amend as follows:

If the sheet is jammed on the first transportation path 15, a guide 15a (indicated by a slash line in FIG. 1) ~~constituting~~ facilitating the first transportation path 15 is ~~turned forward~~ pivoted away from opposing rollers along path 15 of a user by using the back side of the sheet supplying unit 3 as a fulcrum. In this manner, the sheet jammed on the first transportation path 15 can be removed. Incidentally, the jammed sheet is removed by utilizing a work space previously defined between the first transportation path 15 and the frame 17.

Page 15, the second full paragraph, please amend as follows:

In contrast, if the sheet is jammed on the second transportation path 16, a guide 16a (indicated by a slash line in FIG. 1) ~~constituting~~ facilitating the second transportation path 16 is ~~turned forward~~ pivoted away from opposing rollers along path 16 by using the back side of the sheet supplying unit 3 as a fulcrum. In this manner, the sheet jammed on the second transportation path 16 can be removed. Incidentally, the removing work (i.e., recovering work) is carried out by withdrawing the sheet supplying trays 11 and 12 arranged in

parallel to each other forward of the user so as to secure the work space under the second transportation path 16.

Page 16, the second full paragraph bridging pages 16 and 17, please amend as follows:

A registration roller member 19 for controlling the corresponding position of a sheet recording medium with respect to the image formed on the photosensitive drum 4 is located upstream in a transportation direction of the photosensitive drum 4 in the printer unit 2. The registration roller member 19 is adapted to temporarily stop the sheet being supplied to the printer unit 2, and then, to ~~apply flexibility to~~ bend the leading edge portion of the sheet. Consequently, it is possible to correct the inclination of the sheet, which may be inclined during the transportation to the registration roller member 19, and the sheet is started at a timing of an image to be formed on the photosensitive drum 4 in response to a signal output from a control unit, not shown. Thus, the image is transferred at a proper position on the sheet. As a consequence, a strong abutting force (i.e., a strong holding force) is applied to the registration roller member 19, thereby preventing the sheet from getting into the registration roller member 19 during ~~the application of the flexibility~~ bending of the sheet when the inclination of the sheet is corrected.

Page 19, the first full paragraph, please amend as follows:

The side cabinet 21b adjacent to a front cabinet 21a in the cabinet 21 in the above-described printer unit (the image forming unit) 2 is integrated with a lengthwise pair of rail members 26, which are guided in substantially a horizontal direction by guide members, not shown, disposed in the frame of the apparatus body ~~at the time of jamming processing or maintenance~~, as shown in FIG. 9, and further, is configured such that it can be withdrawn (i.e., released) leftward, as shown in FIG. 9.

Page 19, please amend the second full paragraph as follows:

Incidentally, a portion released together with the side cabinet 21b is surrounded by alternate long and short dashed lines in FIG. 1. ~~Moreover~~ Alternatively, the lower portion of the side cabinet 21b may be turnably pivoted on the frame of the apparatus body ~~while the upper portion thereof may be opened outward, although the illustration will be omitted~~ and pivoted to open (not illustrated).

Page 19, the last paragraph bridging pages 19 and 20, please amend as follows:

Two knobs 27 and 28 are provided at a front frame 29a in the apparatus body such that they are exposed to the front of the apparatus body toward a direction perpendicular to the withdrawing direction in ~~the state in~~ which the side cabinet 21b is withdrawn from the apparatus body while they are concealed by a front flange 21c of the side cabinet 21b in the state in which the side cabinet 21b is attached to the apparatus body closed.

Page 20, please amend the last paragraph bridging pages 20 and 21 as follows:

In this manner, since the two knobs 27 and 28 are disposed, the knobs 27 and 28 are exposed forward of the apparatus body when the side cabinet 21b is withdrawn from the image forming apparatus 1 at the time of the jamming processing (i.e., the recovering operation) or the like. Consequently, an operator can readily operate from ~~forward~~ in front of the machine the two knobs 27 and 28, and further, can clearly see both of the knobs 27 and 28 even in the case where the side cabinet 21b is withdrawn from a side position, thereby achieving excellent operability.

Page 21, the last paragraph bridging pages 21 and 22, please amend as follows:

A lengthwise pair of guide rails (i.e., guide means) 36 for guiding the fixing unit 20 are secured to the front frame 29a and a rear frame 29b in the apparatus body, as shown in FIGS. 2, 3, 4 and 7. An access to the fixing unit 20 can be achieved in the state in which the side cabinet 21b is withdrawn from the image forming apparatus 1, as shown in FIG. 9. At the guide rail 36 is formed a slope 37, which is inclined slightly upward in the direction in which the fixing unit 20 is inserted, as indicated by an arrow A, and is securely disposed in a direction substantially perpendicular to the transportation path P shown in FIG. 1. An inclination angle θ of the slope 37 is set to such an extent that the fixing unit 20 can slide outward by its own weight. Incidentally, although reference numeral 29b designates a portion obtained by vertically bending the rear frame at the end in FIGS. 2, 3, 4 and 7, it actually denotes a frame positioned ~~backward~~ to the rear of the apparatus body. The front frame 29a is located forward of the rear frame 29b on the sheet, and the front surface thereof is covered with the cover member 30, as shown in FIG. 9.

Page 23, please amend the first full paragraph as follows:

As shown in FIGS. ~~6 and 7~~ 5 and 6, three conductive coil springs (i.e., resilient members) 43, 43 and 43 for grounding the fixing unit 20 on the side of the apparatus body are disposed at the tip on the insertion side of the fixing unit 20. Incidentally, the coil spring 43 may be disposed at a frame member

58 on the side of the apparatus body. Otherwise, a disk spring may be ~~replaced with~~ used in place of the coil spring 43.

Page 24, the last paragraph bridging pages 24 and 25, please amend as follows:

The lock lever 47 engaged with the lock shaft 46 is adapted to fix the fixing unit 20 to the apparatus body. It is desirable that the lever 47 should be made of a slidable material having mechanical strength, which is ~~hardly cracked by~~ not subject to damage from sliding with the lock shaft 46, such as polycarbonate, so as to suppress the propagation of the heat from the fixing unit 20 provided with the heat generators. Additionally, the lock shaft 46 should be preferably made of a rod material, for example, iron-based metal such as stainless steel.

Page 25, the last paragraph bridging pages 25 and 26, please amend as follows:

In the frame member 58 inside of the apparatus body, there is provided a rotation output unit 55 for applying rotation drive force from the apparatus body to a rotation input unit 54 for transmitting the rotation drive force to the roller members 20a and 20b in the fixing unit 20. The rotation output unit 55 is disposed such that it can be brought into or out of contact with ~~or out of~~ the rotation input unit 54 in the fixing unit 20 in ~~an oscillatable~~ a tilting or shifting manner. Furthermore, the ~~oscillating~~ shifting direction of the rotation output

unit 55 is set to ~~substantially the same as~~ coincide with the sliding direction of the fixing unit 20. Moreover, a pressing spring (i.e., a pressing member) 56 is provided in the frame member 58 such that the rotation output unit 55 is brought into firm contact with the rotation input unit 54 in the fixing unit 20. The ~~oscillating~~ shifting direction of the rotation output unit 55 is set to substantially the same as the moving direction of the fixing unit 20 on the slope 37 by its own weight.

Page 26, the first full paragraph, please amend as follows:

The above-described rotation input unit 54 in the fixing unit 20 includes a drive gear 62 which meshes with the gear 61 fixed to the fixing roller 20a. The drive gear 62 is turnably pivoted at a predetermined position of the fixing unit 20. In contrast, the rotation output unit 55 ~~oscillatably~~ shiftingly disposed on the side of the apparatus body is constituted of a pair of connecting gears 64 and 65 turnably pivoted on a connecting plate 63, which is pressed by the pressing spring (i.e., the pressing member) 56. Consequently, the connecting gear 65 is pressed in the direction in which it can mesh with the gear 61.

Page 26, the last paragraph bridging pages 26 and 27, please amend as follows:

Additionally, the above-described connecting gear 64 is connected to a motor (not shown) serving as a drive source, ~~although the illustration will be~~

~~omitted.~~ To a A drive shaft 64a of the connecting gear 64 is connected to the knob 27 positioned on the fore side of the image forming apparatus. The roller members 20a and 20b of the fixing unit 20 can be turned by turning the knob 27.

Page 27, the first full paragraph, please amend as follows:

The electrostatic force is liable to build ~~stay~~ in the fixing unit 20 since the image transferred onto the sheet member by utilizing the electrostatic force is fixed. The electrostatic force causes the developer on the sheet member to be offset on the fixing roller 20a, thereby inducing the degradation of the quality of the image, or the remaining electrostatic force is electrically discharged, thereby raising a problem of the disorder of the image on the sheet member. In view of these problems, the fixing unit 20 need be grounded with respect to the apparatus body.

Page 28, first full paragraph, please amend as follows:

The fixing unit 20 is pressed from the apparatus body in a direction indicated by an open arrow in FIG. 3 by the resiliencies of the grounding disk spring 53, the coil ~~spring~~ springs 43 and the pressing spring 56, so that movement of the fixing unit 20 can be ~~reduced in initial resistance~~ initiated even if the angle of the slope 37 at the guide rail 36 is small. As shown in FIG. 3, the lock lever 47 is turned in an unlocking direction, the fixing unit 20 can be allowed to slide down to the terminal position by utilizing its own weight

without any touch to the fixing unit 20. At this time, the connector 45 is automatically disconnected from the connector 44 on the receiving side. When the fixing unit 20 reaches the terminal position, it can be speedily cooled by effective heat irradiation owing to the outside air.

Page 28, the last paragraph bridging pages 28 and 29, please amend the follows:

The turning operation for releasing the lock lever 47 from the lock shaft 46 can also be easily performed by the effect of the resiliencies of the above-described resilient members 53, 43 and 56 without requiring any large force. Furthermore, the angle of the slope 37 can be reduced by due to the resiliencies of the grounding disk spring 53, the coil spring 43 and the pressing spring 56, thus making the apparatus compact.

Page 29, the first full paragraph, please amend as follows:

In the case where the fixing unit 20 ~~is attached~~ re-attached again after the fixing unit 20 is has been detached from the guide rail 36, the fixing unit 20 is once placed on the guide rail 36 in substantially the horizontal state, and then, the lower portion at the tip thereof is fitted to the recess 39, as shown in FIG. 4. As shown in FIG. 3, the fixing unit 20 is placed again along the guide rail 36, to be pushed slantwise upward, and then, the lock lever 47 is latched to the lock shaft 46.

Page 30, first paragraph, please amend as follows:

Since the fixing device is guided by the guide member in the direction perpendicular to the transportation path when the fixing device is attached to or detached from the main body of the image forming apparatus, the fixing device can be separated from the transportation path even without ~~retreating~~ retracting the transportation members such as the transportation roller disposed in the vicinity of the fixing device.

Page 30, the third paragraph, please amend as follows:

The stopper is disposed at the terminal of the slope, so that the fixing device can be caused to fall down by its own weight, and then, it can be held at the position exposed to the outside. Even if the temperature of the fixing device is high, the fixing device as a whole is exposed to the outside such that the heat is irradiated before the fixing device is further withdrawn.

Page 31, the second paragraph, please amend as follows:

The ~~oscillatable~~ shiftable rotation output unit is disposed in the apparatus body. The pressing member for pressing the rotation output unit against the fixing unit is provided in the main body of the image forming apparatus, so that the pressing force of the pressing member acts as force for pressing the fixing device to the outside of the main body of the image forming apparatus, thereby serving in detaching the connector or reducing the initial resistance when the fixing device is allowed to slide. Thus, the inclination

angle of the slope need not be increased, thereby making the apparatus compact.